Space Communications Customer Forum #14 (SCCF-14)

http://scp.gsfc.nasa.gov/sccf/

September 21, 2006

Building 3 Goett Auditorium
NASA/Goddard Space Flight Center
Greenbelt, Maryland

Sponsored by:
Networks Integration Management Office, Code 450.1
(Exploration, Operations, Communications and Navigation Systems Division, Code 450)
NASA/Goddard Space Flight Center
Greenbelt, Maryland

Space Communications Customer Forum (SCCF) #14
Briefing Book Contents

Space Communications Customer Forum #14

Exploration, Operations, Communications and Navigation Systems (EOCNS) Division
Space Communications Customer Forum (SCCF) #14
September 21, 2006, Building 3 Goett Auditorium
(NASA/Goddard Space Flight Center)

Agenda

Note: Splinter Group meetings with EOCNS Division service providers (GN/SN/NIMO); NISN; DSMC (SN & GN) Operations Interfaces personnel; and other topics may be arranged (on request). Please contact Mr. Michael Booth (301.286.6192; e-mail: Michael.Booth@gsfc.nasa.gov)

Timeline (approx.)	Subject / Topic	Speaker / Presenter
1:00pm	WELCOME & INTRODUCTIONS	Allen J. Levine/GSFC
1:05pm	OPENING REMARKS	Nicholas G. Chrissotimos/GSFC
1:25pm	ITEMS / NOTES OF INTEREST	Allen J. Levine/GSFC
1:40pm	**MISSION / PROJECT UPDATES** (Organizational Overviews; Current/Future Missions; Issues & Selected Items of Interest; Areas for More Work)	
	• Earth Science Mission Operations (ESMO)	Carlos A. Gomez/GSFC
	• Human Space Flight (HSF) Missions	Cheryl R. Smith/NENS
	• Space Science Mission Operations (SSMO)	Leslie L. Ambrose/GSFC
2:40pm	**STATUS UPDATES** (Significant activity in EOCNS Division offices and our Partners)	
	• Space Network (SN) Project	Keiji K. Tasaki/GSFC Jon Z. Walker/GSFC
	• Ground Network (GN) Project	John T. Jackson/GSFC
	• NASA Integrated Services Network (NISN)	Michael A. Richter/GSFC
	• Flight Dynamics Facility (FDF)	Susan L. Hoge/GSFC
3:50pm	OPEN FLOOR	Allen J. Levine/GSFC
4:00pm	CLOSING REMARKS	Allen J. Levine/GSFC

Welcome & Introductions

Allen J. Levine
Service Planning Manager
Networks Integration Management Office
NASA/Goddard Space Flight Center

Opening Remarks

Nicholas G. Chrissotimos
Associate Director
Exploration, Operations, Communications,
and Navigation Systems Division
NASA/Goddard Space Flight Center

EXPLORATION, OPERATIONS, COMMUNICATIONS & NAVIGATION SYSTEMS DIVISION
Code 450
Nick Chrissotimos, Assoc. Dir.
Frank Cepollina, Dep. Assoc. Dir.
Phil Liebrecht, Dep. Assoc Dir.
Mike Kelly, Business Manager
Bob Jenkens, Project Manager/Special Studies
Paula Wood, Secretary

GROUND SYSTEMS MANAGEMENT OFFICE
Code 450.2

NETWORKS INTEGRATION MANAGEMENT OFFICE
Code 450.1
Scott Greatorex, Chief

CONSTELLATION SUPPORT OFFICE
Code 450.3
Vacant, Chief

LRO PROJECT
Code 451
Craig Tooley, Project Manager

SPACE NETWORK PROJECT
Code 452
Roger Flaherty, Project Manager

GROUND NETWORK PROJECT
Code 453
Roger Clason Project Manager

TDRS PROJECT
Code 454
Ed Lowe, Project Manager

SNE PROJECT
Code 456
Tom Gitlin, Project Manager

RLEP-2 PROJECT
Code 457
John Loiacono, Project Formulation Manager

ECANS
Code 458
Paul Ondrus, Project Manager

EXPLORATION & OPERATIONS FLIGHT SYSTEMS
Code 459
Frank Cepollina (450), Acting Project Manager

Items/Notes of Interest

Allen J. Levine
Service Planning Manager
Networks Integration Management Office
NASA/Goddard Space Flight Center

EOS Data and Operations System (EDOS) Recent Developments and Future Plans (2006-2007)

Carlos A. Gomez

EDOS Manager

Code 581/428

NASA/Goddard Space Flight Center

EDOS Developments 2006

- **Connectivity from Ground Stations:**
  - All EDOS Ground Station Interface Facilities (GSIFs: White Sands, Alaska, Norway and Wallops) are now connected to the Level Zero Processing Facility (GSFC) via a high-rate IP network instead of clock and data circuits.
  - All EDOS operations software was made fully compliant with the high-rate IP data transfers.

- **Short-term Data Storage:**
  - All captures of raw data are now stored on hard drives using Storage Area Network (SAN) technology at each ground station.
  - Discontinued the usage of AMPEX tapes for the required temporary storage of raw data captures on non-volatile media.
  - Elimination of tapes allows automation of data reprocessing.

More Developments in 2006

- ## Automated re-delivery of L0 products to customers:

  - Implemented a creative solution to automatically redeliver products missed at the recipient sites by using an existing but rarely used product disposition interface.

- ## Added a checksum to all science products created by EDOS:

  - Now every RBD or PDS has the option to be delivered with a checksum which can be used to certify data integrity after the production transmission.
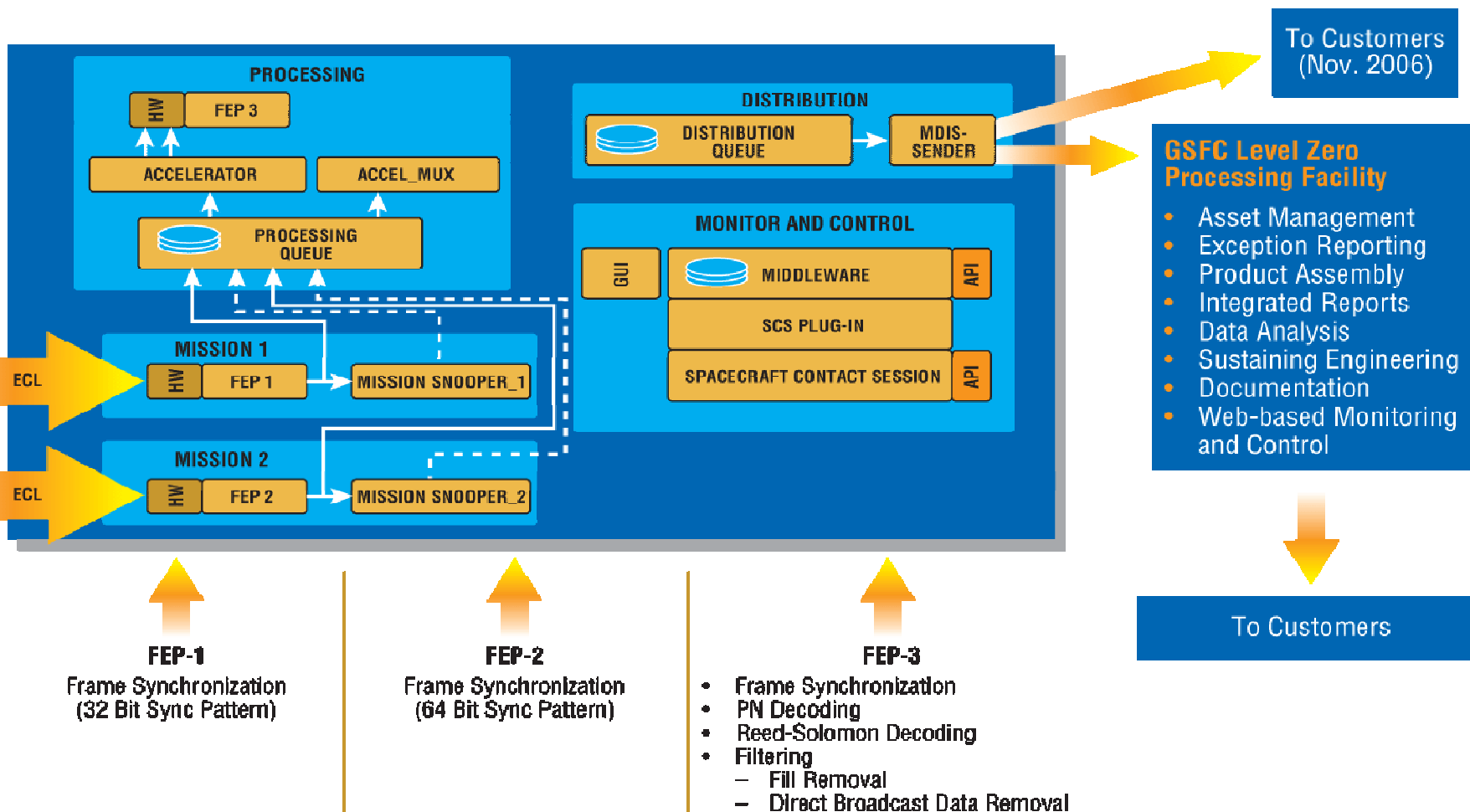
EDOS Data-Driven Poster

<u>EDOS Data-Driven Phase I</u>
<u>June, 2006</u>

- # The EDOS Data-Driven enhancement was placed into Operations in June 2006.

- # Data-Driven features:
  - **The EDOS hardware that performs the data capture function at each ground station was reconfigured via hardware and software to operate without the need of a pre-pass schedule (driven by presence of data and not by a schedule).**

  - **A capture system is now dedicated to each antenna and it is actively monitoring incoming signals until it finds a signal that matches any of the defined supported spacecraft and then the capture starts.**

  - **Advantages: continuous capture even on last minute antenna schedule changes, avoidance of any pre-pass configuration issues, lower operation costs, automated capture reconciliation.**

Data-Driven Concept

EDOS Data-Driven Part II - Spring 2007

- The Phase II for the Data-Driven Enhancement will bring:

  - Integration of all EDOS monitoring and control functions into an integrated set of screens accessible through a web browser.

  - Monitoring of EDOS status and production, via a web interface.

  - Consolidation of operating systems into a single one.

  - Consolidation of hardware to fewer upgraded platforms.

  - Additional capability of producing rate-buffered data files (service processing) at the ground stations.

  - Support for X-band downlink rate of up to 300 Mbps.

- Advantages: simpler daily operations of the EDOS system, less pieces of hardware to maintain and lower floor space requirements; with a single operating system: better knowledge of the system, quicker response to security issues; reduction in latencies and additional capabilities for the future

- In general: reduced operational costs, and extended capabilities.

Samples of EDOS Web-based Monitoring

Other Initiatives

- **Designed a "bridge" between the EDOS systems and the GMSEC middleware supporting the Terra Automation effort.**

  - provides a mechanism in which real-time status information of the EDOS systems at the GSIF and LZPF is delivered to the GMSEC middleware at the EOC.

  - Vuong Ly – lead engineer

- **Replacing required storage on all EDOS L0 products from tapes to hard drives.**

- **Finalizing implementation of Quality of Service (QoS): data rate metering of IP packets on the high-rate data links from the ground stations based on NASA specified delivery priority rules.**

- **Working a solution to the data gaps created as consequence of proposed activation of "auto ops" for Aqua and Aura.**

- **Working together with the EOCNS Division Networks Integration Management Office (formerly the Space Communications Program Customer Commitment Office) on possible support of the OCO Mission**

Human Space Flight (HSF) Integrated Network Status

09/21/06

Cheryl R. Smith
Advanced Mission Planning
Human Space Flight Team
Honeywell Technology Solutions Inc.
NASA/Goddard Space Flight Center

Agenda

- **Integrated Network Overview**

- **Space Shuttle Mission Support**

  - **STS-121 and STS-115 Mission Successes**

  - **Network Requirement Changes**

  - **Network Changes and Upgrades**

  - **TDRSS Constellation**

- **ORION**

- **International Space Station (ISS) Status and Plans**

  - **Soyuz 13/Expedition 14 Overview**

  - **Visiting Vehicle Status/JEM**

  - **ISS Front End Processor**

  - **NASA VHF Support**

  - **IBCC/BCTC Status**

Space Shuttle Integrated Network Overview

SPACE NETWORK

STGT
WSGT
GRGT

GROUND NETWORK

MILA/PDL
DFRC
WLPS
AGO
WSSH
UHF

(TDZ) 275 F3
(TDW) 173.7 F6
TD 171 F5
TD S 046 F4
(TDE) 041.2 F10

KSA –2   KSA - 2

AFSCN
DET 12
22 SOPS
CTS
DGS
GTS
HTS
NHS
TCS
VTS

ER RESOURCES
DFRC
WLPS
WR
WSMR
JDMTA
TEL-4

OD/FM DATA/VOICE/TV/CMD

UHF A-G

NISN

NSAP

CLOSED/OPEN/
RESTRICTED
IONet

SSME/OD/FM DATA/VOICE/TV

SSME/OD/FM DATA/VOICE/TV

OD/FM DATA/VOICE/TV/CMD

FM/OD/CMD DATA

SSME/OD/FM/VOICE/TV /C-BAND/CMD DATA

SSME/OD DATA

GSFC NIC

ACQ DATA
TRKING DATA

C-BAND TRK
RNG SAFETY

SSME/OD/FM/VOICE
/TV /RANGE
SAFETY/CMD/
CMD VER

CD & SC

FDF

PAD - 39 A/B VEHICLE

TO MILA

JDMTA

KSC LCC RPS

TEL-4

ROCC CCAFS

MSFC

JSC MCC

XY CCAFS

SSME/OD/FM/RANGE SAFETY/
CMD VER

RANGE SAFETY/OD/ET TV

Space Shuttle Mission Support

- **Integrated Network successfully supported STS-121 and STS-115 Missions**

  - **STS-121/ISS ULF-1 Launch 07/04 at 2:37 pm ET**

    - **12 day mission for Discovery**

    - **Augmented the Station crew, a third astronaut from the European Space Agency (ESA)**

    - **Multi-Purpose Logistics Module (MPLM) (Leonardo) logistic replenishment mission**

    - **3 EVA's conducted**

    - **Tested the robotic arm as a work platform (in preparation for HST servicing mission)**

    - **Worked with the adhesive for tile repair on purposely damaged tiles**

    - **Tested techniques for inspecting and repairing the reinforced carbon-carbon segments of the nose and wing leading edge**

- **Integrated Network successfully supported STS-121 and STS-115 Missions (cont)**

  - **STS-115/ISS 12A 09/09 at 11:14 am ET**

    - **11 day mission for Atlantis**

    - **Primary payload two new truss segments and two new solar arrays to continue the construction of the ISS**

    - **3 EVA's conducted to install the new truss segments and solar arrays**

- **Network Requirement Changes**

  - **Delivery of ET TV via secure file transfer (prime) and via hard drive (backup)**

  - **Santiago (AGO) requirement will be added to the PRD prior to STS-116 (12/06)**

  - **WLPS Space Shuttle support transition from 9M to 11M**

- **Network Changes and Upgrades**

    - **Dryden Flight Research Center (DFRC)**

        - **Aeronautical Tracking Facility (ATF)-1 and 2 upgrades (7-meter systems) include replacing pedestals, upgrading Low-noise Amplifier (LNA)/RF switches/uplink amps, and adding UHF/VHF antennas**

        - **ATF-3 upgrade (4-meter rooftop antenna) includes adding command capability**

        - **ATF-3 successfully supported on-orbit engineering passes during STS-121 and STS-115**

        - **Upon completion of each antenna upgrade, ATF-1 and ATF-2 will certify by supporting on-orbit engineering passes during STS-116 and STS-117**

    - **Wallops (WPS)**

        - **9-meter antenna scheduled for decommissioning at the end of this contract year**

        - **11-meter system being upgraded to support Shuttle**

        - **Nominal support configuration for STS-121 and STS-115 launch**

            - **9-meter antenna prime, 7.3-meter antenna backup**

        - **11-meter shadowed the STS-121 and STS-115 launches and on-orbit engineering test passes were supported with JSC during the missions**

- **Network Changes and Upgrades (cont)**

  - **Potential CERES support transition to Kirtland AFB**

    - **No determination by AF regarding transition**

    - **If transition occurs, Small Conversion Devices (SCD) will be removed from Schriever and relocated to Kirtland**

    - **STS-116 support plans remain the same as STS-115**

  - **Kennedy Forward/Return Link (KFRL)**

    - **New system will be installed at Kennedy Space Center/Launch Control Center (KSC/LCC)**

    - **Replacement for MILA processing of commands and telemetry**

    - **Supports KSC Launch and Landing operations, testing, and Emergency Mission Control Center capability for Space Shuttle when required**

    - **Successful vendor factory acceptance testing utilizing the Portable Spacecraft Simulator (PSS) occurred 07/17-28/06 at the vendor location**

- **Network Changes and Upgrades (cont)**

  - **AGO**

    - **Successfully supported on-orbit engineering passes during STS-121 and STS-115**

    - **Not a PRD requirement before STS-116; on-orbit support provided for STS-121 and STS-115 on Best Effort Basis only**

  - **NSAP Technology Refresh (NTR)**

    - **Integrated Network will support operational testing when scheduled; tentatively planned for the first week in December as part of the STS-116 verification testing**

  - **TDRS-6 replaced TDRS-8 as TDW**

    - **SN ORT conducted with JSC to validate this change**

  - **Guam Data Interface System Replacement (GDISR) installation is on hold**

NASA

F3
SA-2/ISS
SA-1/STS

F-3 TDZ
275
No KSA2 RCP

F-8
174.3

F6
KSA-1 or -2
ISS when STS
on F5 KSA-2F

F-6 TDW
173.7
No KSA1F

F5
KSA-1F Failed
KSA-1R Green
KSA-2F/STS or ISS

F-5 TD171
171.4

Virtual Spacecraft
M8010MS for STS KSA (RCP) - ISS SSA (RCP)
M8020MS for ISS KSA (LCP) - STS SSA (RCP)
K-band polarity restricted on F3/F4

F-7
150

F-9
062

F-1/TD 049
049 # No KSA2F
No SA1

F4
KSA-2 RCP/STS
KSA-1 to LCP/ISS
(KSA polarity changes restricted)

F-4/TDS
046
KSA2 RCP
KSA1 LCP

F10
Available for conflict resolution

F-10/TDE
040.9

15.0034 GHz
2265 MHz
2217.5 MHz (2287.5 MHz)
15.003 GHz
K LCP
S RCP
2085.6875 MHz
13.775 GHz
S RCP
K RCP
13.775 GHz
2041.947 MHz (2106.406 MHz)

M8000MS

M2115MS

SA2
SA1

Operational
Failed ##
Constraints #
Stored ###

KSA polarity change restricted on F1, F3 KSA-1 and F4 per NASA.

◄— – –► K-band SGLT

Stored TDRS S-band TT&C not shown

ISS/TDW KSAF for conflicts with STS/TD171 KSA2F

Prime support for STS and ISS TDS, TD171, TDZ

Second Guam Antenna System
M/16M installation: TBD
(Weather hold)
ORR date TBD

Canberra S-band TDZ TT&C

ETE Test/ G-TT&C
SGLT 6
Guam Remote Ground Terminal (GRGT)
GDIS
One MAF/Two MAR links
DS-3 (45 Mbps)

S-1 S-2
ETGT S-band TT&C

S-band W-TT&C

5 4
SGLT'S
WART
(SSA-2 F/R KSA-2 R)
WSGT

3* 2 1
SGLT'S
* No SGLT 3 MA or SMA
STGT

S-band S-TT&C

GDIS
White Sands Complex (WSC)
One MAF/Five MAR links per SGLT on 1, 2, 4 and 5
SMAF and SMAR for F8/F9/F10 (No legacy MA)

SGLT assignments are typical and subject to change

* Change from previous chart

- **ORION (formerly called the Crew Exploration Vehicle)**

  – **NASA announced the new crew exploration vehicle will be named ORION**

  – **ORION is the vehicle NASA's Constellation Program is developing to carry a new generation of explorers back to the moon and later to Mars**

  – **ORION will succeed the space shuttle as NASA's primary vehicle for human space exploration**

  – **Expect to start advanced mission planning activities for ORION before the end of calendar year 2006**

International Space Station (ISS)
Status and Plans

- **Soyuz 13S/Expedition 14 early orbit contingency support**

  - **Launch 09/18/06**

  - **Docking 09/20/06**

  - **Expedition 14 crew replaced Expedition 13 crew and delivered fuel/supplies**

- **Visiting Vehicle Status**

  - **Automated Transfer Vehicle (ATV)**

    - **System Validation Test (SVT) 5 will be conducted 1 month prior to launch**

    - **Launch scheduled for NET 05/07**

  - **H-II Transfer Vehicle (HTV)**

    - **HTV Category 2 TDRSS Compatibility Testing utilizing the CDH simulator (at GSFC) NET 04/07**

    - **HTV Ground Segment (GS) Data flow (simulator at GSFC) NET 10/07**

    - **HTV/TDRSS/GS ETE test NET 12/07**

- **Japanese Experiment Module/Inter-Orbital Communication System (JEM/ICS)**

    – **JEM/ICS would provide ISS an interface for Ka-band support in the event of Ku-band failure**

    – **ISS Program decided to postpone any JEM/ICS testing with TDRS until on-orbit (Option 2)**

        • **JEM exposed facility including the ICS Ka-band will be delivered on-orbit on ISS Flight 2J/A scheduled for 1st quarter of 08**

        • **Perform Station Detailed Test Objective (SDTO) after the ICS is activated on-orbit 10/08**

        • **Future negotiations with JAXA, GSFC, and WSC are TBD**

- **ISS Front End Processor Replacement (FEPR)**

  – **JSC is developing a new ISS FEPR system that will reside at WSC and replace the existing ISS MCC FEPS**

  – **New design moves part of the ISS front-end processing to WSC (Level 0)**

    - **Frame sync, time-tagging, Reed-Solomon error correction/detection, CCSDS de-multiplexing, and Space Link Expansion (SLE) processing**

    - **Line Outage Recording and 30 day disk playback recording capability to accommodate network line outages**

  – **WSC will no longer be required to record ISS S-band data or hold tapes**

- **NASA VHF Stations Emergency Communications Support Equipment Enhancement**

  – **Modular Receiver/Transmitter (MRT) pre-emphasis/de-emphasis module upgrade to improve frequency response and audio clarity**

  – **Installed, tested, and operational at DFRC; will be installed at WLPS and WSC after Soyuz 13/Expedition 14**

- **Interim Backup Control Center (IBCC)**

  – **The IBCC, located at the MSFC-HOSC, provides communications between MSFC and the ISS in the event JSC personnel must evacuate the MCC**

  – **Successfully conducted 3 command tests during 07/06 – 08/06**

- **Backup Communications Team Center (BCTC)**

  – **The BCTC, located at the GSFC NIC, will be activated in the event of an evacuation of JSC personnel at MCC**

  – **A Team consisting of a minimum of a Ground Controller and Command Controller man consoles in the NIC and provide real-time scheduling and performance monitoring for ISS operations**

  – **The BCTC was successfully exercised in 05/06**

Space Science Mission Operations (SSMO)

Leslie L. Ambrose
Network Integration Manager
Networks Integration Management Office
NASA/Goddard Space Flight Center

Space Science Mission Operations Project (Code 444)

Patrick Crouse
Project Manager (Acting)

Vacant
Deputy Project Manager

Bonnie Matters
Mission Business Manager

Joseph Fainberg
Senior Project Scientist

September 21, 2006

SSMO Significant Events

- **IMAGE Status**

- **Operations Guidance for Current Missions**
  - **Heliophysics**
  - **Astrophysics**

- **Items of Interest**
  - **RIONET/SLE**
  - **Mission Voice/Data**

- **Upcoming Launches**

IMAGE Status

IMAGE successfully completed 2-Year prime mission

and >3.5 years of extended operations

- Launched March 25, 2000

- Last nominal contact was on December 18 from 0640 to 0740z at station DS34. All commands and responses verified as nominal

- Scheduled contact on December 18 at 1515z at DS34 was a negative acquisition with no RF detected. Switched to DS44 with same result

- Review Board findings were presented on 4/21/2006

  – A potential cause of loss of contact is a high energy event (SEU) that would cause a Solid State Power Controller (SSPC) servicing the Transponder to 'open'

  – Result would be an inability to get commands in to the spacecraft and the spacecraft would cease to radiate (both of which have been observed)

  – The SSPC could be reset closed in the event of a spacecraft startup

  – October 2007 will provide a long eclipse that may be able to discharge the spacecraft to the point of reset

  – Operations have stood down until that time frame when recovery will be attempted

- Final Report in Distribution

Heliophysics Operations Guidance

- **Polar**   March 2007
- **FAST**   September 2008
- **Geotail**   September 2008
- **TRACE**   September 2009
- **ACE**   Beyond September 2010
- **Cluster II** Beyond September 2010
- **RHESSI**   Beyond September 2010
- **SOHO**   Beyond September 2010
- **TIMED**   Beyond September 2010
- **WIND**   Beyond September 2010

Astrophysics Operations Guidance

- **FUSE**   September 2008
- **RXTE**   March 2009
- **WMAP**   September 2009
- **GALEX**   Beyond September 2010
- **Swift**   Beyond September 2010

Items of Interest

- **Restricted IONET (RIONET) Conversion/Space Link Extension (SLE)**

  - **SOHO implementing RIONET and SLE on backup string for operations testing**

  - **ACE testing will begin following installation of RIONET in MOC**

- **Mission Voice and Mission Data Requirements Review**

  - **Evaluating "need" for mission voice relative to current and future operations concepts**

  - **Striving to align mission operations concepts with current business/cost models**

  - **Interested in reducing/eliminating need for Small Conversion Devices**

Space Communications Customer Forum #14

Upcoming Launches

- **Solar TErrestrial RElations Observatory (STEREO)**
  - The third mission in NASA's Solar Terrestrial Probes program (STP). This two-year mission will provide a unique and revolutionary view of the Sun-Earth System.
  - Currently scheduled to launch aboard a Delta II from the Cape NET October 25, 2006

- **Aeronomy of Ice in the Mesosphere (AIM)**
  - The AIM satellite mission will explore Polar Mesospheric Clouds (PMCs), also called noctilucent clouds, to find out why they form and why they are changing.
  - AIM is currently scheduled to launch on a Pegasus from VAFB NET March 29, 2007.

- **Time History of Events and Macroscale Interactions During Substorms (THEMIS)**
  - THEMIS answers fundamental outstanding questions regarding the magnetospheric substorm instability, a dominant mechanism of transport and explosive release of solar wind energy within Geospace.
  - Currently scheduled to launch on a Delta II from the Cape NET December 19th, 2006.

- **SOLAR-B**
  - A joint cooperative between NASA, JAXA and the United Kingdom will perform imaging of the Sun. The mission consists of a coordinated set of optical, EUV and X-ray instruments that will investigate the interaction between the Sun's magnetic field and its corona.
  - Currently scheduled to launch from Japan with a window from September 22 - 30, 2006

Space Network (SN)

Keiji Tasaki and Jon Walker
Space Network Project
Code 452
NASA/Goddard Space Flight Center

Space Network
Code 452

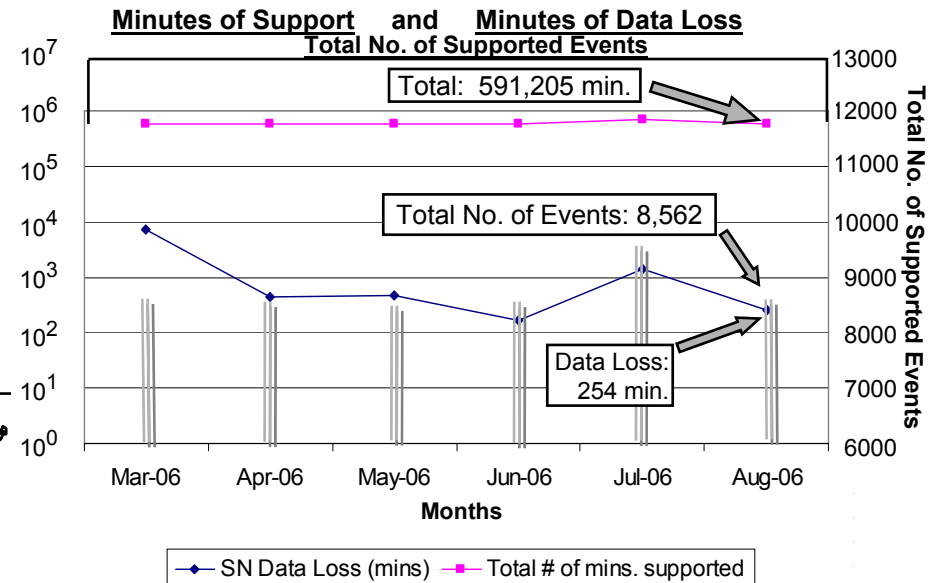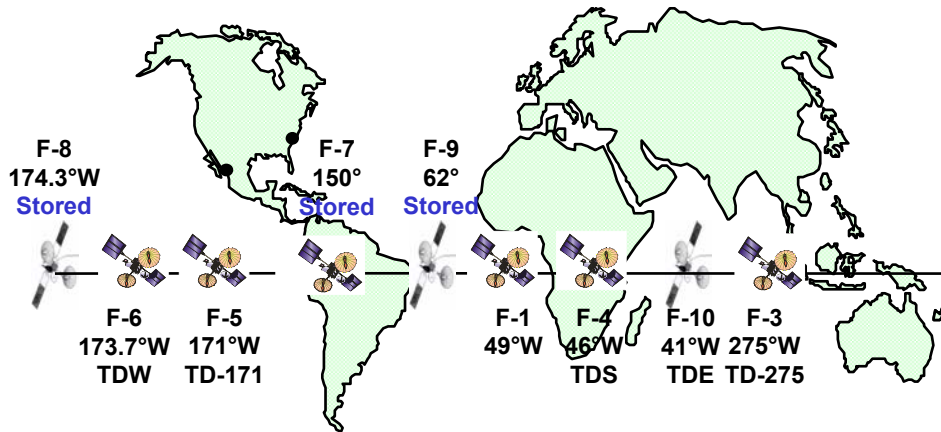|	
Project Manager:	**Roger Flaherty**
Deputy Project Manager (Ground):	**Keiji Tasaki**
Deputy Project Manager (Space):	**Jon Walker**
Financial Manager:	**Paula Tidwell**
Prime Contractor:	**Honeywell Technology Solutions, Inc. (HTSI)**

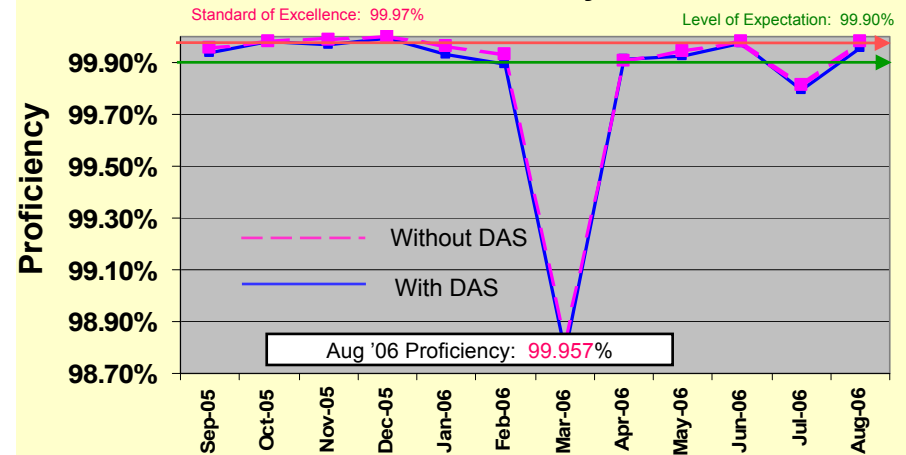**September 21, 2006**

SN Service Metrics Summary

- ### Space Network at a Glance

F-8
174.3°W
Stored

F-7
150°
Stored

F-9
62°
Stored

F-6
173.7°W
TDW

F-5
171°W
TD-171

F-1
49°W

F-4
46°W
TDS

F-10
41°W
TDE

F-3
275°W
TD-275

Minutes of Support and Minutes of Data Loss

Total No. of Supported Events

Total: 591,205 min.

Total No. of Events: 8,562

Data Loss: 254 min.

—◆— SN Data Loss (mins) —■— Total # of mins. supported

SN Critical Support Proficiency Trend (with DAS)

Aug '06	Number of Events	Scheduled Support (hrs:min:sec)	Loss (hrs:min:sec)	Proficiency
ELV	2	3:21:55	0:00:00	100.0000%
SP&M	1490	1804:51:32	0:42:20	99.9609%
LEOP	0	0:00:00	0:00:00	N/A
HSF	984	2368:57:00	0:54:44	99.9615%
Summary	2476	4177:10:27	1:37:04	99.9613%

SN Proficiency Trend

Standard of Excellence: 99.97%

Level of Expectation: 99.90%

Without DAS

With DAS

Aug '06 Proficiency: 99.957%
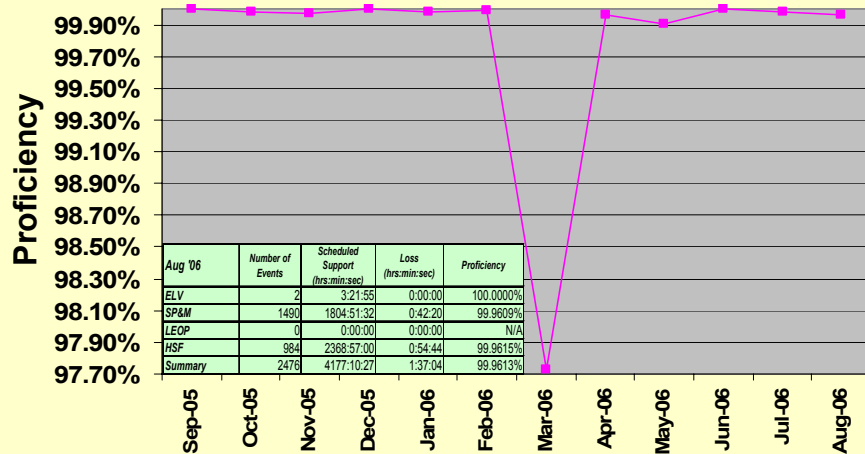
| Missions	Total No. of Supported Events	Service Stat.	Proficiency (%)	Standard of Excellence (%)
Aqua, Aura, FUSE, GP-B, HST, ISS, L-5, L-7, SP&M, SPTR, Swift, TERRA, TRMM, ULDBP, XTE	8,562	9,857 hrs. sched 9,853 hrs. actual 4 hrs. 14 min. lost	99.96%	99.97%

Error Anomaly Trends

- **Space Network Error/Anomaly Trends**

  - **Data loss errors only**
  - **Only three error/anomaly types used**
    - **Operator error**
    - **Software anomaly**
    - **Hardware anomaly**
  - **Normalized to 10,000 hours of support**
  - **Metrics applicable to historical data**
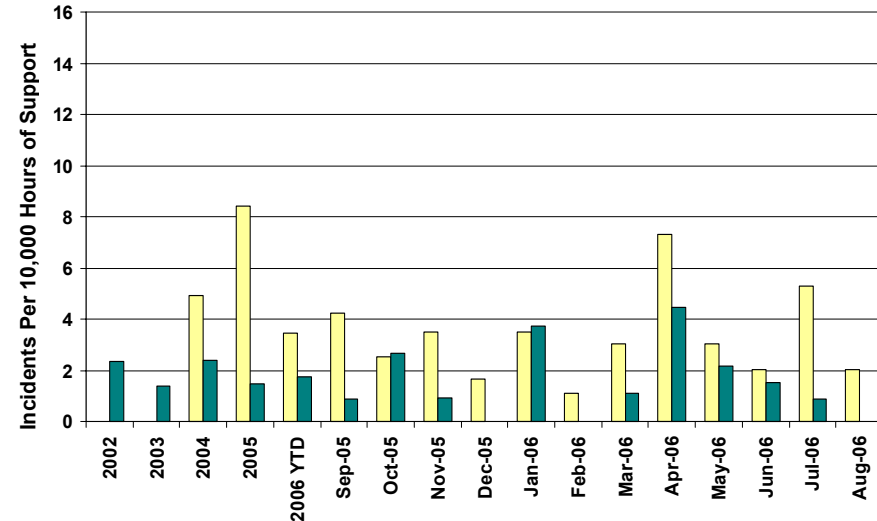 - **The first four bars are for 2002, 2003, 2004, and 2005 respectively**

Space Network Ops Errors Versus Service Support (Compared to Annual Averages for 2002 - 2005)
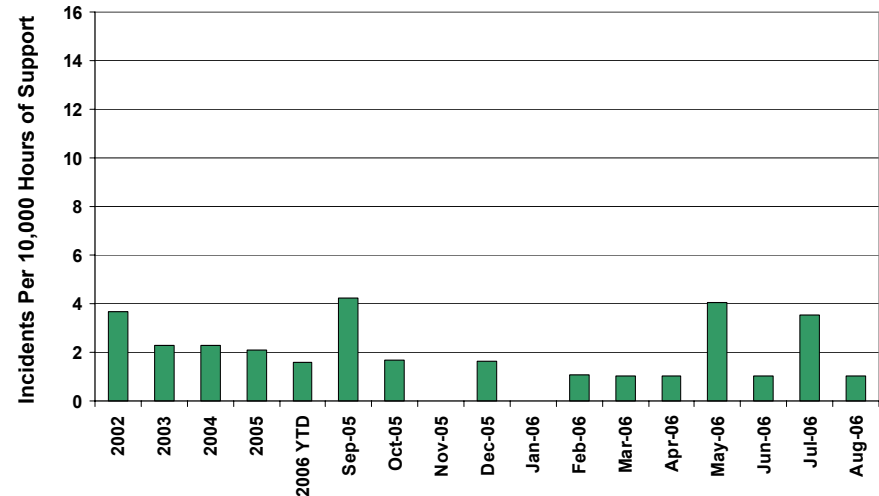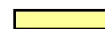
Space Network Hardware Anomalies Versus Service Support (Compared to Annual Averages for 2002 - 2005)
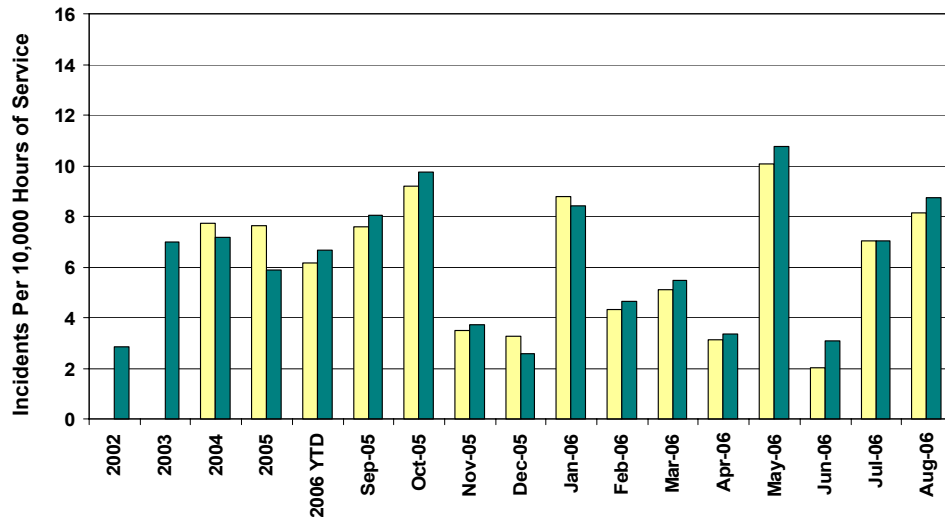
Space Network Software Anomalies Versus Service Support (Compared to Annual Averages for 2002 - 2005)

Anomalies without DAS
Anomalies including DAS

TDRS Constellation Health (As 8/31/2006)

Legend:
- Indicates fully operational (green)
- Indicates backup unit(s) in use (yellow)
- Indicates failed subsystem (red)

F-1 — Launch 04/83, 49.0 °W, Note 11
- SA1: S (failed), Ku (failed)
- SA2: S (backup), Ku (backup)
- MA, BUS, TT&C (operational)

F-3 — Launch 09/88, 275.25°W, Note 9
- SA1: S, Ku (Note 1)
- SA2: S (Note 2), Ku (backup, Note 10)
- MA, BUS, TT&C (operational)

F-4 — Launch 03/89, 46°W, Note 9
- SA1: S, Ku (Note 13)
- SA2: S, Ku
- MA, BUS (Note 7), TT&C (Note 7)

F-5 — Launch 08/91, 171.0°W
- SA1: S (Note 2), Ku (failed, Note 3)
- SA2: S (Note 6), Ku
- MA, BUS, TT&C (operational)

F-6 — Launch 01/93, 173.7°W, Note 14
- SA1: S, Ku
- SA2: S, Ku
- MA, BUS, TT&C (operational)

F-7 — Launch 07/95, 150.5°W, Stored
- SA1: S, Ku
- SA2: S, Ku
- MA, BUS, TT&C (operational)

F-8 — Launch 06/00, 174.3°W
- SA1: S, Ku, Ka
- SA2: S, Ku, Ka
- MA (backup), BUS, TT&C (operational)

F-9 — Launch 03/02, 62.4 °W, Stored
- SA1: S, Ku, Ka
- SA2: S, Ku (Note 8), Ka (Note 8)
- MA, BUS (Note 5), TT&C (Note 12)

F-10 — Launch 12/02, 40.9°W
- SA1: S, Ku, Ka
- SA1: S, Ku, Ka
- MA, BUS, TT&C (operational)

General Notes:
- One spare SGL TWTA on F-3 & F-4
- Ten-year design life for F-1 - F-7, 11 years for F-8 - F-10 and four years for on-orbit storage

Notes:
1. F-3 KSA2 polarization restricted to LCP, KSAR2 low performance; Redundant Ku-Band paramp selected to recover from switch anomaly
2. S-Band TWTA failed on F-3 (SSAF2), F-5 (SSAF1)
3. Both Ku-Band TWTA units on F-5 failed (KSAF1); Return available
4. F-8 MAR G/T shortfall
5. F-9 propulsion anomaly: failure of A-3 and W-2 thrusters
6. SSAR2 parametric amplifier failure on F-5
7. F-4 ESA and MFG LO failures
8. F-9 LO failure KSAR2
9. KSA Polarization services restricted on F-3 & F-4
10. F-3 Primary Coarse Sun Sensor Failure
11. F-1 SA2 SSAR & SSAF, KuSAR2 operational using WART
12. F-9 Primary Central Telemetry & Command Unit failure
13. F-4 KSA1F TWTA failure
14. F-8 payload deactivated 6/14/06, in support of SNE spiral 0 testing

**Indicates Updates & Changes

TDRS Constellation Bus Health (As of 8/31/2006)

F-1   Launch 04/83   49.0 °W
TT&C (Note 10) (Note 1)	Power (Note 8)	Propulsion (Note 2)	Thermal	ACS (Note 3)

F-3   Launch 09/88   275.25°W
TT&C	Power	Propulsion	Thermal	ACS (Note 4)

F-4   Launch 03/89   46°W
TT&C (Note 5)	Power	Propulsion	Thermal	ACS (Note 6)

F-5   Launch 08/91   171.0°W
TT&C	Power	Propulsion	Thermal	ACS

F-6   Launch 01/93   173.7°W   Note 11
TT&C	Power	Propulsion	Thermal	ACS

F-7   Launch 07/95   150.5°W   Stored
TT&C	Power	Propulsion	Thermal	ACS

F-8   Launch 06/00   174.3°W
TT&C	Power	Propulsion	Thermal	ACS

F-9   Launch 03/02   62.4 °W   Stored
TT&C (Note 9)	Power	Propulsion (Note 7)	Thermal	ACS

F-10   Launch 12/02   40.9°W
TT&C	Power	Propulsion	Thermal	ACS

Legend:
- Green — Indicates fully operational
- Yellow — Indicates backup unit(s) in use
- Red — Indicates failed subsystem

General Notes:
- Ten-year design life for F-1 - F-7, 11 years for F-8 - F-10 and four years for on-orbit storage

Notes:
1. F-1: Transponder A unusable; no spare TWTA
2. F-1: A-side thruster manifold and –Roll thruster failed
3. F-1: CPE-A failed; Gyro 1/2 failed
4. F-3: Coarse Sun Sensor – A failed
5. F-4: MFG-A Tlm LO failed
6. F-4: ESA-A failed
7. F-9: Thrusters A3 & W2 failed
8. F-1 High Rate Charge capability from Battery 1 failed
9. F-9 Primary Central Telemetry & Command Unit failure
10. F-1 Telemetry Processor C/RCTU B failure
11. F-8 payload deactivated 6/14/06, in support of SNE spiral 0 testing

**Indicates Updates & Changes

TDRS Constellation

- **Transition of a 2nd generation TDRS to SNE**
  - **User services transitioned to F-6 (from F-8) on May 10, 2006**
  - **F-8 to drift starting this fall, plan now being formulated**
  - **F-8 needed at 271°W in January 2007**

- **TDRS-K, -L**
  - **Memorandum signed by the AA on August 7, 2006**
  - **Awaiting decision by OMB**
  - **TDRS Project funded in FY07 for the start of procurement activities**

TDRS Constellation

- **New Services/Testing**

  - **TDRS HIJ DAS testing (F-10):**

    - **Successfully demonstrated ground-based beam forming ability with TDRS-10**

    - **Analysis of June testing data indicates global coverage beam does not meet user telemetry requirements**

    - **Next step is to analyze if a reduced field of view can provide Legacy TDRS performance**

    - **F1-7 provide full DAS services**

  - **TASS Demonstration (F-1)**

    - **Limited one-year demonstration of TASS began on August 21**

    - **Operations Readiness Review was successfully conducted on August 31**

SGLT-7

- **SGLT-7 / TDRS-8 combination will not be available for general use**

- **SNE** $\xrightarrow{\text{M\&O Transition}}$ **SGLT-7**

- **Contract being modified to include M&O into NENS core**

  - **Operational Readiness Review (ORR):   11/28/2006**

  - **Phased transitions complete: 11/21/2007**

TDRSS High-rate Equipment

- **Replace and enhance the TDRSS KSA 225 MHz Return data service by adding the capability to process bandwidth efficient signal designs**

    - **OQPSK/LDPC - 150 Mbps to 410 Mbps**

    - **8PSK/LDPC - 410 Mbps to 625 Mbps**

    - **Single Access Antenna Autotrack for new signal designs**

- **WSC site visits this summer by six potential vendors successful**

- **Demonstration Requirements Review held 8/2/2006**

    - **On 9/5/2006, NENS issued a draft RFP for contract to be awarded to two vendors to demonstrate their capabilities to fulfill the requirements to replace and upgrade the high-rate receiver equipment at WSC and GRGT**

    - **ECANS requested that Rate ½ LDPC decoder be included in the contract**

    - **Optionally contractors may demonstrate the use of the 650 MHz channel at Ka-band for up to 1.5 Gbps data rate**

- **Procurement of production units to begin in FY07 and continue to FY08**

BRTS Replacement

- **Status**

  - **NENS awarded contract to General Dynamics for 9 units**

  - **11 antennas have been purchased and are being tested in GSFC Building 25 Compatibility Test Lab**

- **Schedule**

  - **System Requirements Review**   **3/3/2004**

  - **NENS Task Start**   **4/2005**

  - **Preliminary Design Review**   **3/22/2006**

  - **Critical Design Review**   **10/26/2006**

  - **Delivery of 1st unit**   **12/2006**

  - **Delivery of final (spare) unit**   **9/2007**

  - **Test Readiness Review**   **6/2007**

  - **Operations Readiness Review**   **8/2007**

Second Guam Antenna System (SGAS)

- **Status**

  - **Antenna Installation slipped until end of typhoon season in January 2007**

- **Schedule**

  - **Installation/test of 16-m**   **January 2007**

  - **Installation/test of 5-m**   **February 2007**

  - **SGAS ORR**   **TBD 2007**

Progress at Guam Remote Ground Terminal

SNE 5m antenna completion

2006-09-01
Connecting two sections of
EET radome

SNE 16M antenna

Guam equipment installation
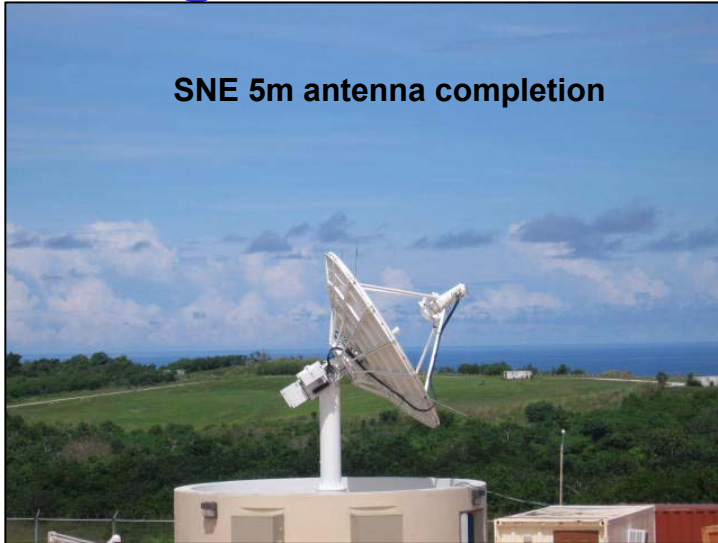
SNAS Objectives

- **Provide a fully capable, low cost, easily integrated SN service request system with real-time service monitoring and control interface**
- **Provide a network-based system which will replace the User Planning System (UPS) and SN Web Services Interface (SWSI)**
- **Plan to accommodate Constellation-related requirements**
- **Build 1 to start integration testing by October 1**
- **Have held many individual and group customer interface meetings; next one to be held in late October/early November**

SNAS Schedule

SRR	**4/28/2005**
PDR	**9/12/2006**
CDR	**5/4/2006**
Implementation	**August 2007**
ORR	**December 2007**

SNIS

- **Space Network IP Services (SNIS) Product**
  - 1st Systems Requirements Review (SRR) was held March 30, 2005
  - Requirements analysis and operations concepts development restarted in June 2006 to meet Constellation/ECANS needs
  - Mobile IP/Space Link Extension (SLE) testbed is being developed in the RF Systems Lab
  - Revised System Requirements and Operations Concept documents to be ready by December 2006
  - System design to begin in 2007

Demand Access System (DAS)

- DAS proficiency in support of Swift for August was 99.63%, largest outage due to Programmable Telemetry Processor (PTP) software process failure.

- Procurement of spares and the Guam replacement unit completed.

- Support of multiple/simultaneous missions will be a challenge, i.e., Swift and C/NOFS, plus balloons.

- Funding for the procurement of expansion units was put in FY07 and FY08 budget. Current DAS capacity maxes out in 2007, 2009, and 2011 on out.

- SN looking at various capacity expansion options to meet DAS demand.

- ## Australian TDRS Facility

  - ### Limited motion TT&C facility to track drifting/stored TDRS

  - ### Also provide contingency TT&C support (no user service) for Indian Ocean Region TDRS

  - ### Location in western Australia, perhaps co-located with Moblas-5

  - ### Planned to be operational in Summer 2007
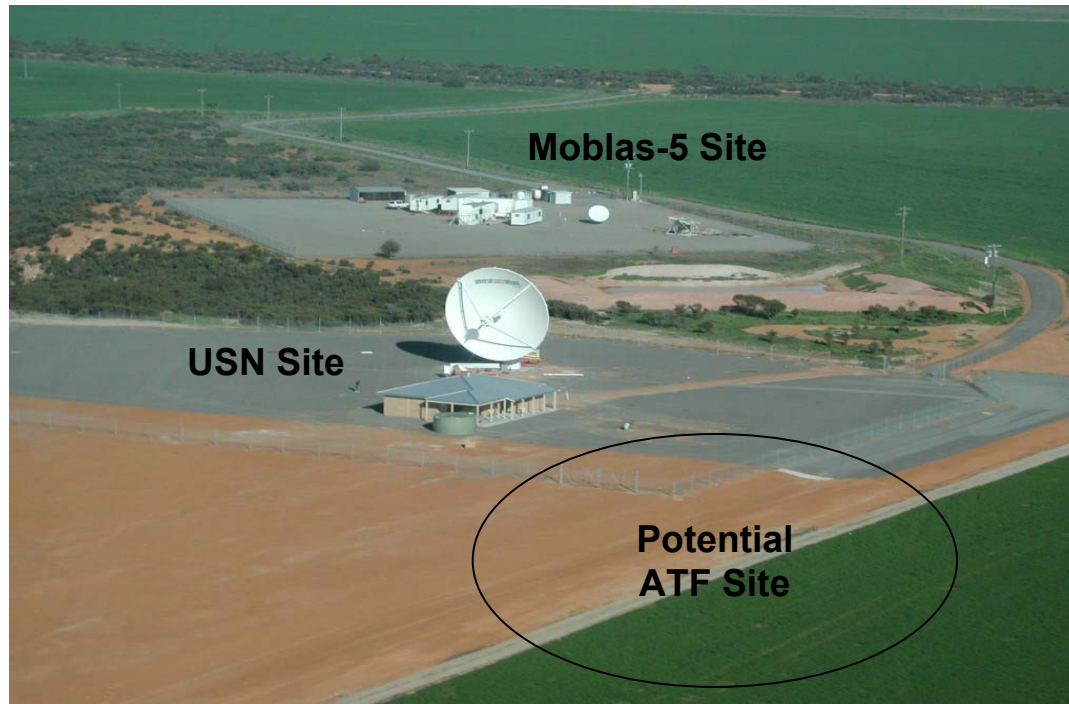
Moblas-5 Site

USN Site

Potential ATF Site

Education & Public Outreach

Backup

Space Network Access System (SNAS)

SN Project and the Networks Integrations Management Office

SN Vision:

– **SNAS is envisioned as a network-based system providing a singular interface to SN for comprehensive NCCDS & DAS services**

- **Planning/scheduling and real-time monitor & control**

– **Intended to provide a replacement for the User Planning System (UPS) and SN Web Services Interface (SWSI)**

Major SNAS System Features:

– **Distinct MOC Client and O&M Client applications**

- **Written in Java for platform independence**

- **Highly configurable interface to MOC External Processing Systems (EPS) to support existing operations and components**

– **SNAS Servers are collocated at WSC:**

- **Local interfaces with NCCDS and DAS**

- **Support customers on Open, Restricted, and Closed IONet**

- **Web Server to provide TUT data access**

Space Communications Customer Forum #14
SNAS Physical Architecture
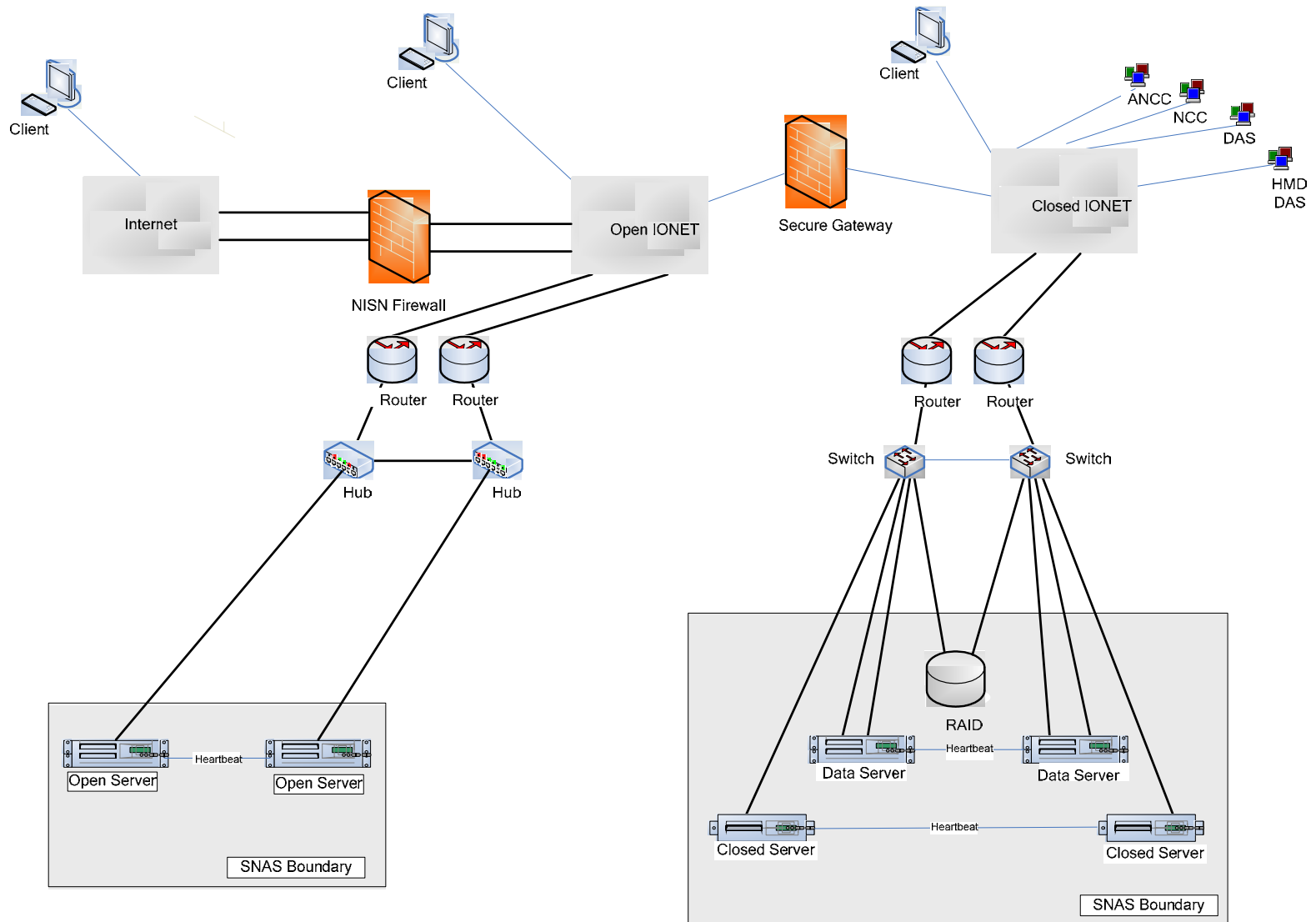
The SNAS Architecture Supports High Availability Requirements & Provides Mission Data Assurance

Space Communications Customer Forum #14
Project Schedule and Documentation Status

Milestone	Schedule
SRR	Completed 04/28/05
PDR	Completed 09/12/05
CDR	Completed 05/04/06
Implementation	August 2007
ORR	December 2007

Program Documents	Status
System Requirements Document	CCB Approved*
System Operations Concept Document	CCB Approved*
System Security Plan	2nd draft in development
DAS / SNAS ICD	CCB Approved
EPS / SNAS ICD	Ready for CCB Submittal
System Test Document	1st draft developed
Acceptance Test Document	1st draft developed
User's Guide	1st draft developed

DCNs may be issued to reflect changes due to CDR RFAs

Space Communications Customer Forum #14
Current Project Status

Major Detailed Design/Implementation Activities:

Build 1 to start Integration Testing by October 1

Planning for next Customer Interface Meeting (CIM #5)

- **To be held late October/early November**

- **Database, HA**

- **MOC Client User Roles**

- **Getting ready for Beta Testing**

Beta Testing to start with Build 2 in January 2007

TCP/IP interface to connect to existing MOC components (pending)

New SNAS Documentation:

- **Drafting User's Guides**

- **Drafting Test Procedures for customer Beta testing participation**

Space Communications Customer Forum #14
Customer Liaison – Collected Inputs

Group Customer Interface Meetings

- CIM #1 – April, 2005
- CIM #2 – June, 2005
- CIM #3 – August, 2005
- CIM #4 – January, 2006

Meetings with Individual Missions
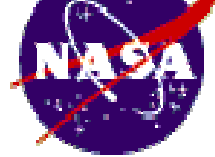
- JSC, TX (HSF, Shuttle, ISS)
- JAXA (JSC Missions Coordination)
- GSFC & APL (GPM, R-XTE, EOS, TRMM, HST & STSCI, SP&M, GLAST)
- Raytheon, CO (NPOESS & Aura)
- Stanford University, CA (GP-B)
- WSC, NM (O&M Operations)

Meetings with Programs

- GMSEC, Restricted IONet, TKUP, SNIS, Security

Formal Customer Requests (RFAs)

- SRR, Delta-SRR, PDR, CDR

Ground Network Orbital Accomplishments & Plans

John T. Jackson

Ground Network Orbital Manager

September 28, 2006

AGENDA

Ground Network Orbital Overview
Recent Accomplishments
Summary
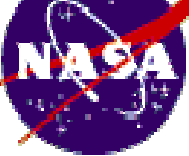
GN Today

Earth Science Missions
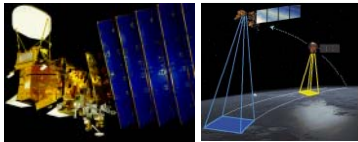
Space Science Missions

Shuttle Launch and Landing

Sub-Orbital Missions

NASA Communications
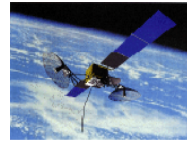
Partner Station:
NOAA Satellite Facility
Gilmore Creek, Alaska

Alaska Ground Station
Poker Flat, Alaska

USN Alaska Station
North Pole, Alaska

Wallops Ground Station
Wallops, VA

Kongsberg Satellite Services
Svalbard, Norway

Alaska Satellite Facility
Fairbanks, Alaska

USN Australia Station
Dongara, Australia

USN Hawaii Station
South Point, Hawaii

Merritt Island
Launch Annex
Florida

McMurdo Ground Station
McMurdo Base, Antarctica

University of Chile
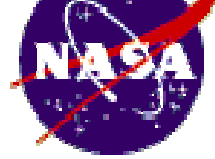
■ *NASA*   ■ *University*

■ *Commercial*   ■ *Other Government Agency*

AGENDA

Ground Network Orbital Overview
Recent Accomplishments
Summary
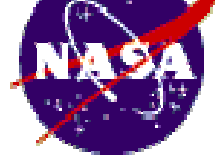
Santiago, Chile (AGO)

Station Certified for GOES, RHESSI, HST, IMP-8, LANDSAT-5, SOLAR-B, SORCE, and TOMS-EP

Recent Achievements:
- Certified HST on April 7, 2006
- Provided engineering passes support for STS 121 and STS 115 missions.
- Installed T-1 line to replace 128 kbps line
- Transitioned all missions previously supported on 128 kbps line to T-1 except TDRS
- 128 kbps line to be disconnected 09/30/06

FY07 Plans:
- Certify missions migrating from the DSN 26m subnet including RADARSAT-1 and TDRS
- Provide a Programmable Telemetry Processor (PTP) to AGO as a back-up, while AGO purchases their own.
- Certify THEMIS Mission
- Potential missions for certification include GRACE 1&2, SAMPEX, SWAS, TRACE
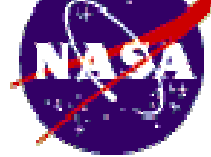
Hartebeesthoek, Africa (HBK)

Station in Process of Being Certified for THEMIS

Recent Achievements:
- Preparing HBK for THEMIS Support
- Integrated Services Digital Network (ISDN) equipment installed at HBK**.**

FY07 Plans:
- Provide TT&C Support for Launch & Early Orbit Phase (L + 30), Ops Check-out and Verification Phase (through L + 60), On-Orbit Phase (through L+ 90) and 2 years of Contingency for the THEMIS mission scheduled for launch on 12/19/06.

Alaska Satellite Facility

Station Certified for ERS2, FAST,
QUIKSCAT, RADARSAT-1, SCISAT

Recent Achievements:
- January 2006 NTIA Granted Transmitting License to ASF
- April 2006 Certified ASF for Commanding of FAST and QUIKSCAT
- May 2006 installed and began check-out of new Tracking Data Formatter (TDF)

FY07 Plans:
- Integrate Tracking Data Formatter (TDF) into operations
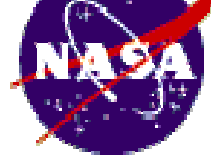- Certify TOMS-EP, AIM, SAMPEX, SWAS, TRACE & WIRE

Alaska Ground Station (AGS)

Recent Achievements:
- Completed radome installation on PF2-11m (09/15/2006)

FY07 Plans:
- Complete RF testing of PF2-11m under radome
- Certify PF2-11m for all missions previously certified on that antenna
- Receive and integrate two GSIP's for PF2-11 from the EOS Project
- Certify AIM mission

Station Certified for ACRIMSAT, AQUA, AURA, CALIPSO, CHAMP, ELV, EO-1, FAST, GP-B, GRACE-1&2, ICESAT, JASON-1, LANDSAT-7, QUIKSCAT, SAC-C, SAMPEX, SWAS, TERRA, TOMS-EP, TRACE, WIRE
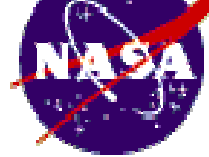
Universal Space Network

Station Certified for SMEX
MISSIONS: FAST, FUSE, GALEX,
SWAS, SWIFT, TIMED, TRACE, WIRE.
ALSO GOES-11&13, TDRS-1st
Generation

Recent Achievements:
- Provided emergency support to TDRS-3 attitude divergence recovery on 03/22/06
- Provided LEOP support for GOES-13, launched 05/24/06, using GOES-11 for testing
- Provided requested support for GOES-9 on 08/08/06 during NOAA station planned power outage at Gilmore Creek.

FY07 Plans:
- Certify HST, TDRS, GOES series in support of DSN 26m offload
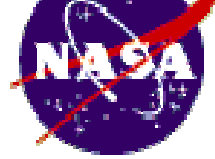
Svalbard Ground Station (SGS)

Recent Achievements:
- Providing excellent support for Polar Missions

FY07 Plans:
- Certify for support of AIM
- Continue support of Polar Missions

Station Certified for ACRIMSAT, AQUA, AURA, CHAMP, EO-1, FAST, GP-B, GRACE-1&2, ICESAT, LANDSAT-7, QUIKSCAT, SWAS, TERRA, WIRE

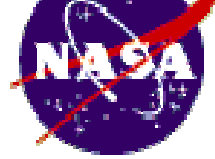# McMurdo Ground Station (MGS)

Recent Achievements:
- Successfully supported ST-5 Mission with first X-Band uplink capability in the GN

FY07 Plans:
- Install Enertec systems providing upgraded capabilities including QPSK
- Remove all ST5-specific equipment

Station Certified for ERS-2, ELV, FAST, GP-B, GRACE-1&2, ICESAT, QUIKSCAT, RADARSAT-1, SAC-C, SAMPEX, SWAS, TRACE, WIRE
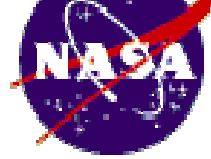
Wallops Ground Station (WGS)

Station Certified for ACRIMSAT, AQUA, AURA, CALIPSO, CHAMP, CHIPSAT, EO-1, FAST, FUSE, ELV, GOES, GP-B, GRACE 1&2, HESSI, ICESAT, ISS, JASON-1, QUIKSCAT, STS, SAC-C, SAMPEX, SEAWIFS, SOLAR-B, SORCE, SOYUZ, SWAS, TOMS-EP, TRACE, WIRE

Recent Achievements

- Mothballed Wallops 8m (TOTS) systems in December 2005
- Decommissioned five Wallops VHF (SATAN and SCAMP) systems in December 2005 and removed them in March 2006
- Decommissioned and removed Meteosat Antenna at WFF after Meteosat support was completed May 12, 2006
- Decommissioned and removed 6-meter antenna which was back-up to 9-meter for STS support July 2006
- Decommissioned and removed ADAS 60-foot antenna and sent some parts to Morehead St. University July 2006
- Installed new SCC/ATS software for WGS-11m system. Completed certification of most missions formerly certified on WGS-11m including COBE, EO-1, FAST, HESSI, SAMPEX, SEAWIFS, SOURCE, SWAS, TOMS-EP, TRACE, and WIRE.
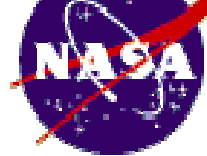
FY07 Plans:

- Removing Wallops 9m antenna from service October 8, 2006.
- Complete certifications for remaining missions on WGS 11m antenna including ACRIMSAT, AQUA, AURA, CHAMP,CHIPSAT, GPB, GRACE 1&2, ICESAT, and SAC-C.
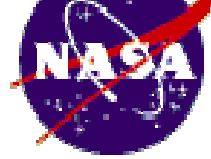- Certify AIM and THEMIS missions
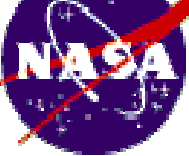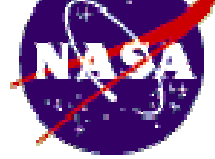
Greenbelt Station (GBLT)

▸ **Decommissioned and Removed 9m antenna (8/05) and 9m Control Room at Greenbelt (08/06)**

    –Sent Gear Parts, Electronics and Spares to MILA

▸ **Decommissioned and Removed 4.3m antenna at Greenbelt (8/06)**

    –Sent Parts to MILA

▸ **Removed Several Antenna Dishes Stored at GSFC**

GN Antenna Clean-up

25 Foot Dish Near Bldg 83 (Before)

25 Foot Dish (Removed)

25 Foot Dish (Disassembled & Stage for Excess pick-up on Bldg 25 Front Lot)

Antennas Dishes Removed from Bldg 83 and Staged for Excess Pick-up on Bldg 25 Front Lot

9-Meter Gear Reducers Removed from Behind Bldg 25 Staged for Excess Pick-up on Bldg 25 Front Lot

J-Boxes and Scrap Dishes Removed from Behind Bldg 25 and Staged for Excess Pick-up on Bldg 25 Front Lot
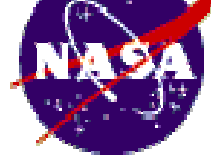
GN Antenna Clean-up (Cont.)

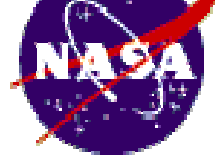Cleaned 4.3 M Pad Where 9-meter Gears were removed

2nd View of Cleaned 4.3m Pad

3rd view of 4.3M Pad Where 4 9-meter Gears Were Removed

WS1 Ground Station

Station Certified for TBC LRO

Other potential future missions:
NASA and Partner Missions requiring S-band and/or Ka-band services

Recent Achievements:
- Developing 18-meter S and Ka band autotracking antenna
- Integrating hardware at Datron manufacturer in Simi Valley

FY07 Plans:
- Complete GN acceptance tests
- Begin LRO GS Certification
- Available for other mission certification and operational support

FY08 Plans:
- Support LRO Launch and on lunar orbit operations
- Support other NASA missions TBD

AGENDA

Ground Network Orbital Overview
Recent Accomplishments
Summary

Summary

The Ground Network continues to streamline operations through:

- The reduction of government-owned antenna systems and assets

- Increased usage of commercial service providers

- The redistribution of missions' support by certification of missions on remaining assets

NASA Integrated Services Network (NISN)

Michael A. Richter
NISN Service Manager (NSM)
Code 731
NASA/Goddard Space Flight Center

NISN & GSFC Code 731 Status Updates

NISN Customer Interface Group (CIG) Points-of-Contact

GSFC/Code 731 Customer Support Office

NISN Mission Communications Working Group Forum

Mission Operations Voice Enhancement (MOVE) Project

NSAP Technology Refresh (NTR)

GSFC Projects Requirement validation for FY07

NISN Customer Interface Group (CIG)
NISN Service Manager (NSM)
Co-Leads of the CIG
Jerry Zgonc(GSFC)/Elizabeth Sudderth(MSFC)

- Mike Richter, 301-286-6376
- Mike.Richter@nasa.gov
- (Office of Science Missions) DFRC, JPL, VAFB (ELVs)

- Kim Wright, 256-544-0936
- Kimberly.A.Wright@nasa.gov
- (Space Operations Mission Directorate) ISS, JSC, KSC, MSFC, MAF,
- WSTF (Institutional)

- Seaton Norman, 301-286-8676
- Seaton.B.Norman@nasa.gov
- (Space Operations Mission Directorate) STS, ISS, JSC, KSC, MAF/WSTF
- MSFC, DFRC (Shuttle)

- Jerry Zgonc, 301-286-7160
- Gerald.R.Zgonc@nasa.gov
- (Office of Science Missions) WSC, LaRC, GSFC (Institutional)

- Stan Rubin 301-286-4230
  Stanley.D.Rubin@nasa.gov
  Exploration Communications and Navigation Systems (ECANS)

Space Communications Customer Forum #14

GSFC UNITeS CIG TEAM

– **W. BILL IHNAT, PROJECT LEAD, 301.902-6018: william.h.ihnat@nasa.gov**

– **MICHAEL ALLEN, 301.902-6015: Space Operations Mission Directorate (previously Code M) michael.j.allen@nasa.gov**

– **MICHAEL EDER, 301.902-6014: Office Of Science Mission Directorate (previously Code S) michael.j.eder@nasa.gov**

– **TRISH PERROTTO, 301.805-3106: Office of Science Mission Directorate (previously Code Y) perrotto_trish@bah.com**

MSFC UNITeS CIG TEAM

– **WANDA NORWOOD, CUSTOMER SERVICE MGR., 256.961-9331: wanda.o.norwood@nasa.gov**

– **MICHAEL BRADLEY, PROJECT LEAD, 256.961-9492: michael.j.bradley@nasa.gov**

GSFC/Code 731 Customer Support Office

- Obtain administrative and mission requirements for all GSFC projects and Codes

- Includes Mission Voice/Data/Video, Administrative Voice/Data (CNE) Wireless, Pagers, Cell Phones, Two-Way Radio Systems, Common Carrier Services, Cable Plant (Fiber/Copper)

- Coordinates requirements for implementations internally at GSFC and/or with NISN(WAN), if required

- Points-of-Contact;
Brad Butts (301)286-3266
Diane Teets (301)286-5535
Tammy Tuttle (301)286-4883

<u>NISN MISSION COMMUNICATIONS WORKING GROUP(MCWG) FORUM</u>

You are invited to attend the 5th NISN Mission Communications Working Group (MCWG) Forum to be held Tuesday, October 17 thru Friday, October 20, 2006 at the Doubletree Hotel Colorado Springs, World Arena, Colorado Springs, Colorado.

Please visit the NISN website at http://www.nisn.nasa.gov under "What's New!" for additional information and to complete the pre-registration form. Questions regarding the MCWG Meeting, Agenda or other topics related to this event, may be submitted to our planning committee by using the link located on the NISN home page.

MOVE Project Status

The purpose of the Mission Operations Voice Enhancement (MOVE) Project is to replace existing mission voice systems with Commercial Off-the-Shelf (COTS) products suitable to meet the mission voice <u>conferencing</u> and voice recording requirements at NASA Centers and location.

- **Funded by Space Operations Mission Directorate(SOMD) at Hdqtrs.**

- **MOVE Project Manager – Dan Duffy(GSFC/Code 721)**

- **MOVE Contacts**
  - **Doug Fooshee/MSFC, ARC, GRC, Michoud**
  - **William "Al" Wylie/JSC**
  - **Katie Poole/GSFC, WSC, WFF, Mila, HQ, JHU**

- **<u>Basic</u> <u>Sites</u>: GSFC, MSFC, and JSC (15 optional sites included)**

- **Contract awarded Sept.(TBD)/2006**

- **GSFC Switch delivery – 3rd. Quarter 2007**

- **MOVE website at: http://move.nasa.gov**

NSAP Technology Refresh(NTR)

- **Replacement of existing NSAP/Paradyne equipment in the Mission Network**

- **Current H/W equipment and S/W platforms have reached "end of life"**

- **Will combine the point-to-point Mission T-1 services into higher aggregate bandwidth over a MPLS platform which will support higher capacity service**

- **A transition from existing carrier equipment to new equipment will be required for all locations**

- **AT&T NTR installations began October/2005**

- **Transition activities scheduled to begin October 4, 2006 with tentative completion by May 2007.**

- **NTR project manager: Vicki Stewart (NISN/GSFC Code 731)**

- **NTR Project Engineer: Scott Douglas (NISN/GSFC Code 722)**

GSFC Projects Requirement Validation
for FY07

- **NISN/UNITES CSR's will be coordinating with GSFC projects to confirm existing NISN communications requirements and any projected changes required for FY07 and beyond**

- **NISN will work with the assigned Mission Commitment Engineers (MCE's) for this validation**

Flight Dynamics Facility (FDF)

Susan Hoge
Operations Director
Code 595
NASA/Goddard Space Flight Center
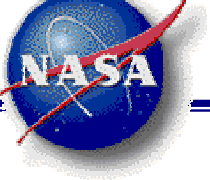
- So far during this calendar year the FDF has
  - Supported 10 ELVs
  - Supported 9 TDRS and 14 spacecraft on a routine basis
  - Supported two STS missions
- Upcoming new mission support includes
  - Solar-B
  - Themis
  - STEREO

- Upgraded UNIX workstation operating system from HP-UX 10.2 to HP-UX 11i
    - Included about 60 software packages
- Database upgrade from ORACLE 7.3.2 to ORACLE 9i
    - Includes move to new Itanium servers
    - Final operations testing being done
    - Targeted switchover in October 2006
    - Final milestone for removal of FDDI ring

- Several upcoming external interface changes
  - JSC FEPR for post-STS
  - JPL implementing Service Preparation System
- Offered opportunity to assess FDF system architecture
  - Guidelines for new architecture
    - Operations savings
    - Infusion of new technology
    - Groundwork for future missions
  - Preliminary plan being worked

Open Floor

Allen J. Levine
Service Planning Manager
Networks Integration Management Office
NASA/Goddard Space Flight Center

Closing Remarks

Allen J. Levine
Service Planning Manager
Networks Integration Management Office
NASA/Goddard Space Flight Center